

Insecutor Inscitiae Menstruus

Vol. II

MAY, 1914

No. 5

SOME NEW AMERICAN MOSQUITOES

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Lesticocampa espini, new species.

Female.—Proboscis long and slender, 2.5–2.75 mm., about as long as the abdomen or twice the standard,¹ not swollen at tip, entirely clothed with flat brownish black scales, labella acute, dark. Palpi short, about 0.4 mm. in side view, or less than one-sixth the length of the proboscis, not quite one-third of the standard, brownish black, with a few outstanding settae. Antennæ shorter than the proboscis (2 mm.), basal joint four times as long as wide, swollen at middle; terminal joints increasingly somewhat longer, dark, rugose, with basal white rings, below the whorls of long black bristles; apical small whorls present, last joints not distinctly white ringed, but with white shining pubescence; tori brownish black, shining whitish, with apical lighter excavation. Clypeus ovate, nude, blackish. Eyes black, in certain lights bronzy to silvery, broadly contiguous above (the very fine *dark* separating line corresponds entirely to that of *culicivora*); lowest part of front between eyes and tori a very distinct lighter brown-

¹ The standard I introduce here as a unit for measuring the different parts of mosquitoes and establishing their proportion. It is obvious that the absolute measurements, carefully taken, will always be the main data, but I must object to such expressions as "proboscis as long as the whole body" or "as long as the abdomen" as the only statement. Such expressions are inexact, as the length of the abdomen, and consequently the length of the whole body, differ widely in the same species and depend largely upon physiological circumstances. As the mesothorax is one continuous piece of chitin it seems to me to furnish us the best measurement, if we can find two well-marked points to mark the standard line. The tip of the scutellum is such a point, and so I add the scutellum to the mesonotum and measure from the tip of the scutellum to the foremost part of the mesonotum above the neck. This measurement may be taken as well in dorsal as in lateral aspect and seems to me largely independent of physiological changes.

ish colored rhombus. Occiput covered with flat dark scales; lower half of sides of head light golden, this color reaching farther up along the eyes, but not to the vertex (the tips of the foremost row of scales shine like tin in a certain light, and a fine nude line around the eye sometimes gives a light impression). A single collar of dark, upright forked scales on the nape; some black bristles at the lateral margins of the eyes, and few among the scales near the vertex; of the two coarse bristles at vertex in the angle between the eyes, I found only one with coppery shining tip in one specimen, yet I do not doubt that both will be found in well-preserved specimens.

Prothoracic lobes rather large, not more remote dorsally than in *culicivora*, which means relatively (for a *Lesticampa*) not far; vestiture of broad scales, light golden on the lower parts before; behind and above, as well as the summit dark, shining bronzy; a row of dark coarse bristles following the anterior margin. Mesonotum coppery brown above, lighter toward the edges, with a dense rough vestiture of broad black scales of a submetallic coppery or bluish luster; some longer and lighter scales near the neck. In my specimens bristles are only present at the posterolateral margins of the disk, where they form a dense fanlike double row. Scutellum narrow, distinctly trilobed; scales like those of the disk, which also disguise entirely the furrow between scutellum and mesonotum. The scutellar bristles are not well preserved in my specimen. I find about six insertions in the midlobe, about five short bristles and one long one on the side lobes; postnotum chestnut brown, with lighter reflection and a dense tuft of black coarse bristles posteriorly. Pleuræ and coxæ bearing silvery scales with a brassy shade.

Abdomen about twice (or a little more than twice) as long as the standard: 2.5 to 3 mm. in my specimen; black above with coppery to blue luster, beneath mostly white with a brassy shimmer, the two colors separated in a wavy line; the dark color reaches farther down at the limits of the joints, fading beneath into narrow dark basal bands; eighth segment entirely dark ventrally; in the mid-ventral line outstanding light scales; the first tergite laterally covered with silvery scales; end of abdomen with many long blackish hairs, some of them also present on first joint.

Wings 3-3.25 mm., or 2.5 times the standard; second marginal cell one-third of the wing length, longer and narrower and reaching nearer the base of the wing than the second posterior one; the stalk of the sec-

ond marginal one-third of the cell; posterior cross vein not quite its own length nearer base than the anterior one; broad ovate scales on forks of second and fourth and on third veins, even the outstanding scales rather broad to the sixth vein; narrow almost ligulate scales present only (in my specimen) on stems of fork veins and basal part of forks of fifth and on sixth; color of scales dark, almost blackish on the first veins, with bronzy luster. Halteres light golden at base, dark at knob.

Femora with a whitish ventral longitudinal stripe, the rest of the legs clothed with brownish black, flat, nowhere raised scales, without white markings, submetallic, shining lighter bronzy beneath; some spiny bristles present, especially on the tibia and on first tarsals; claws equal and simple. Length of femora 1.75, 1.65, 1.50 mm.; hind first tarsal longer than tibia.

Length: Actual, 3.8 mm.; calculated, head, 0.6 + thorax, 1.3 + postnotum 0.2 + abdomen, 3 = 5 mm.

Described from three females. Type in the collection of the Institut für Schiffs- und Tropenkrankheiten at Hamburg; two cotypes in the collection of the U. S. National Museum, Washington, D. C.

Panama Canal Zone, caught near Corozal, Miraflores Lake, and Culebra, on different days in November, 1913, by myself.

Following the tables of Howard, Dyar and Knab (in mss.) the species proves to be a *Lesticocampa* by the well-separated thoracic lobes, the contiguous eyes, the long and slender proboscis, and the nude clypeus. In the species table it might be separated from *rapax* and *dicelaphora* by: "Scutellum entirely dark."

The whole animal presents a monotonous brown-blackish appearance, with lighter colors beneath; nevertheless, in the sun, legs, abdomen, and proboscis show a brilliant bluish or greenish metallic luster, which is most obvious on the occiput.

Comparing our species with the tables of Theobald and Lutz we can not use the male palpi. Nevertheless our species is easily excluded from the genera: *Rhynchomyia* by the absence of the conical prominence, from *Hylconops* and *Goeldia* by the proboscis being not swollen, from *Trichoprosopon* by the nude clypeus, from *Sabethes* by the absence of the raised scales, from *Phoniomyia*, *Wyeomyia*, and *Menolepis* by the broad wing-scales, from *Sabethoides* by the position of the cross veins, from *Prosopolepis*, *Dendromyia*, and *Sabethinus* by the slender and long proboscis, furthermore from *Prosopolepis* by the absence of scales on

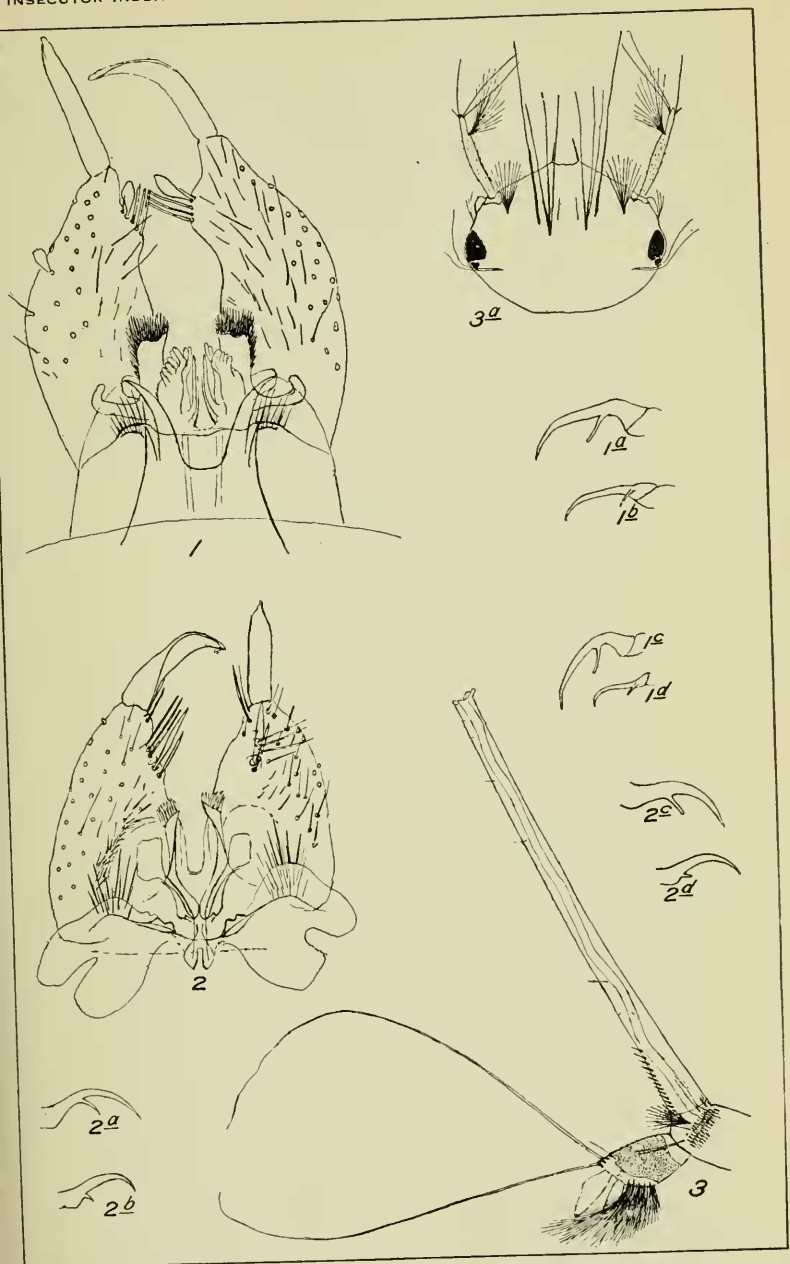
the clypeus, and by the absence of them from the metanotum from *Sabethinus*.

Lesticocampa lunata in its whole appearance comes very close to the present form, but separates at once by the small, narrow, curved, thoracic scales of *lunata*; moreover, *lunata* is a much larger species. No *Dendromyia* description, either of Theobald or of Lutz, agrees with my species, and thus I can not but take it to be a new one.

Culex prasinopleurus, new species.

Female.—Proboscis 1.75 mm. (1.2 the standard), bent up dorsally in my (dried) specimens; gradually swelling toward tip, rather stout, with short dark hairs; clothed with flat black scales above, ventrally on anterior third and at base and whitish in the middle; labellæ ovate, lighter brownish at tip, with whitish pubescence. Palpi almost 0.3 mm., one-sixth the length of proboscis (in side view), black-scaled, with some outstanding hairs. Antennæ longer than proboscis, about 1.9 mm., or 1.3 the standard; tori black; joints about four times as long as wide, rugose, dark gray, with fine white basal rings, with shining white pubescence and black hair-whorls. Eyes black, shining coppery. Face black. Clypeus black. Occiput black with dark bronzy lighter shining small narrow curved scales, which are especially light, almost pure white, around the eyes, numerous black upright forked scales present; black light shining hairs most numerous on the sides and at the border of the eyes, the pair at vertex distinctly coarser but separated from the other hairs by only a small distance; sides of head with few white flat scales; neck testaceous.

Prothoracic lobes rather large, black, sublateral, with numerous coarse black bristles. Mesonotum 1.4 mm., chestnut brown; vestiture of black, shining bronzy, minute hairlike scales, two median lines smooth; prescutellar pit only partly nude; long black coarse bristles forming three rows on disk, one median double line and a pair of rows which are simple throughout; numerous bristles at the lateral and anterior edges of disk, especially above and before the basis of wings. Scutellum lighter ochraceous gray, with scales like those on mesonotum; seven long bristles on median lobe, four long ones on each side lobe as well as smaller ones. Postnotum nude, ochraceous, darker in the middle. General impression of the sides and ventral parts dull whitish, with a greenish to ochraceous shade. Under the microscope pleuræ and coxæ ochraceous, the most prominent parts darkened, shining greenish white in certain lights;



E. Martini, del

EXPLANATION OF PLATE

1. *Culex prasinopleurus* Martini. Male genitalia; a-d, claws of same.
2. *Culex chalcocorystes* Martini. Male genitalia; a-d, claws of same.
3. Unbred larva, probably of *Culex chalcocorystes* Mart. Air tube and anal segment.

many black hairs present, forming longitudinal rows on the coxæ, which in the second are directed purely laterally, in the first more forward, in the last turned posteriorly; black scales intermixed with these bristles; on the first coxæ some bristles behind the row near apex; whitish scales running along second and third coxæ before the row of bristles; first episternum with a big tuft of hairs, intermixed with scales, a less condensed group of bristles and some scales on the detached part of the second episternum, third episternum bearing a dense row of strongly white shining hairs and white scales.

Abdomen 1.5 mm., about equal to the standard, blunt, black above, with basal white lateral spots which are visible from above, eighth segment white dorsally; venter dull whitish, with black apical bands, the chitin greenish gray, bearing white scales at base and dark ones near apex; long, black, white-shining hairs are scattered over the sternites and form apical rows on the tergites, last joints with finer hairs; first tergite with bristles only, except a median tuft of dark scales.

Wings 3.3 mm., about $2\frac{1}{3}$ the standard; second marginal cell one-fourth of the length of the wing, three times as long as its petiole, longer, narrower, and reaching nearer to base of wing than the second posterior one; posterior cross vein separated by less than twice its own length from anterior; membrane light gray; vestiture of veins of dense ligulate blackish scales. Halteres light at base, black at outer half.

Femora I < II < III; first hind tarsal shorter than its tibia; tip of tibia brownish white; femora broadly white beneath, with rows of spines; tibiæ the same, but the light stripe smaller, most obvious in the hind tibiæ, the rest of legs dark.

All dark scales on the body with submetallic luster, blue on dorsum of legs, abdomen, and proboscis.

Male.—Proboscis usually distinctly bent down near middle, bearing here a long hair-tuft beneath; white encircling, more extensive on ventral face than in female. Palpi about 2.4 mm. long, black; the proboscis reaches sometimes only to the second quarter of the third joint, sometimes to the proximal limit of its fourth quarter. Antennæ black and white ringed, densely plumose. White on margin of eyes more strongly marked than in female. Thorax as in female, length 1.3 mm. Abdomen 1.5 mm. or a little more in length; lateral spots hardly visible; apices of tergites denuded, giving a lighter impression. Wings with sparser and broader scales. Legs as in female, claws 1:1, 1:1, 0:0. Male geni-

talia (fig. 1): Side pieces with long coarse bristles; outer lobe subquadrate, bearing three rods, one leaf-like appendage, and one bristle. Clasp filament as long as the side piece. Inner branch of harpe with a tuft of spines, outer branch long, armed. Middle branch of harpagones divided and dentate, first branch lanceolate with acute tip.

The reason for considering this form a new species may be given as follows: In the genitalia table of H. D. & K. it runs out to No. 12. Of the mosquitoes there included most have banded legs, others banded abdomen; *equivocator* has an entirely black proboscis, with no ventral hair tuft in the male and a more reddish thorax. In *similis* the proboscis is very similar, but our form is not so robust and the male of *similis* has almost invariably a banded abdomen. *Microsquamosus* has not been found in crab-holes, it has no white margin at the eyes, which, however, in my species is not always well marked; it has white lateral spots in the male, which I was not able to make out in my males; it is more bronzy shining and lighter colored and more robust. From Theobald's *Culex scholasticus* my form is separated by its smaller size and by a difference in the claws of the male; the hair tuft on the proboscis is not mentioned by Theobald. The other differences in the descriptions might be due mostly to modes of expression. At least *microsquamosus*, *scholasticus*, and my species agree, among other points, in two very striking ones, the scale difference on the wings of male and female and the reduction of the markings on the abdomen of the male; *microsquamosus* and my form, moreover, have the male proboscis quite alike. Only by a comparison of the types of Theobald and a study of the larvæ may we be able to settle definitely the question of the identity of the three species.

Described from eight males and four females from crab-holes near Santiago de Cuba, collected by Dr. Espin and myself. Types in the collection of the Institut für Schiffs- und Tropenkrankheiten at Hamburg. Cotypes in the U. S. National Museum.

Culex chalcocorystes, new species.

Female.—Proboscis 1.9 mm., 1.7 the standard, 1 to 1.5 the length of the abdomen, rather stout but hardly swollen at tip; vestiture of black bronzy shining scales and very few fine hairs near base and apex, at the former point about eight long bristles standing out ventrally at about 60°; labellæ lighter, especially at tip, with light scales and pubescence. Palpi

in side view¹ 0.4 mm.; reaching almost one-fifth the length of the proboscis, or almost one-third of the standard, bearing dark bronzy scales and some fine hairs, some coarser and outstanding ones near base. Antennæ about as long as the proboscis; tori hemispherical, black, lighter shining near tip; joints dark, rugose, with a small, black-bordered white ring at base and with shining white pubescence; whorls mostly of five long black hairs, with light reflection at tips; basal joint about four times as long as wide, in side view, the other joints a little longer. Eyes dark, partly with coppery luster, almost contiguous at vertex. Face black. Clypeus nude, dark, with lighter luster, ovate. Occiput black, with creamy white narrow curved scales and black upright forked ones; the former are broader near the margin of the eyes and at the sides, narrower and smaller in the middle, no dark curved scales present; the forked scales shining golden near tip in certain lights, the extreme apices often whitish, a color which may be produced in certain position in the entire lateral forked scales. Some coarse black bristles along the margin of the eyes, two especially long ones at the vertex projecting forward, separated from the other ones by a considerable interval. Sides of head clothed with flat creamy scales.

Prothoracic lobes remote, small, ochraceous gray, with a greenish white luster, with a row of three long and two small bristles and some narrow curved white scales behind. Mesonotum: Standard 1.3 mm.; chitin ochraceous, pale with dark markings; the blackest ones before and above base of wings encircled by a lighter stripe, thus forming an ocellar spot, which is fairly obvious in certain lights, though by far not so well marked as in *ocellatus*; anterior part of disk with two median broad dark stripes separated by a median ochraceous furrow, each bearing a longitudinal

¹ We emphasize the side view, since it is obvious that the proportion of proboscis to palpus must be different in dorsal aspect, the clypeus covering the basal part of both organs. While this circumstance practically does not alter the proportion where the palpi are longer or at least half as long as the proboscis, its effect is considerable in forms with very short palpi. Thus the dorsal aspect in our form gives us a proportion of almost 1:7. Moreover, the proboscis is often curved mostly in the median plane; therefore drawing its lateral aspect we get its real length, in dorsal view only its projection on the optical plane. Thus logically we should prefer the side view measurement, and as this view allows us to take the standard and the length of the abdomen as well from the same drawing, this way of measuring seems the most rational as well as the most economical. At least the method by which the proportion is established should be given in descriptions, since otherwise comparison is impossible.

dark impression on its outer half; medianly on the disk there are three oblique paler furrows running from the median depression through the dark stripes posteriorly and outwardly and ending in the pale ring of the ocellar spot; sides before and anterior margin of disk light; hind part of disk dark, with lighter impressed prescutellar area. Scutellum dark at base in a semilunar spot, border light greenish gray in dorsal view, the colors shifting with the light; all dark parts with whitish reflection, black rings at bases of bristles most obvious in the light area. The vestiture of thorax consists of black, white reflecting, narrow curved scales in not very dense position, one median very small nude line and two broader ones corresponding to the longitudinal furrows; prescutellar area smooth; two median rows of coarse black bristles with golden luster, these begin simply at the sides of the black stripes and multiply behind; a lateral short row above the base of the wings, irregular bristles before the ocellate spot and a double row of long coarse bristles at the anterior margin. Scales of scutellum much smaller and more bristle-like than those of mesonotum, evenly tapering toward the tips, which shine white and give under feeble enlargement the impression of minute hairlike white scales. 2×3 long bristles present on midlobe, four long and some shorter ones on side lobes. Macroscopically the side view gives an almost greenish impression, the integument being of greenish gray color, with the most prominent parts of pleuræ and coxæ darkened and with whitish reflections. A longitudinal row of bristles on every coxa and some flat gray scales, the first coxæ with two more bristles behind; pleuræ with rows and tufts of hairs.

Abdomen dark above, dull greenish white beneath; length 1.2–2.1 mm.; broad scales above black with strong coppery luster, dull white beneath, at tip of seventh tergite with coppery luster in some lights, eighth mostly dark beneath with bronzy reflection. First tergite dorsally dark on basal half, light greenish gray on apical, with numerous long coarse black bristles, the light color medianly interrupted by a tuft of dark coppery scales and fine hairs; lateral parts entirely nude, light greenish, shining white. Second and third segments dorsally with basal white spot. As the scales have the iridescent character of the sabethine group, some raised or turned scales here and there glisten white and in some specimens give the impression of scattered white scales. The distribution of dark and light beneath and black and coppery above varies widely with differences in light and the contraction of the abdomen. The abdominal bristles are scattered on the venter, almost confined to the apical rows

ventral tufts of the head contain respectively six and four hairs. Some of dorsally, though some scattered bristles are also present on the last tergites; hairs on eighth and ninth short, straight, and golden.

Wings 2.75 mm., 2.5 the standard, 0.65 mm. broad; first marginal cell two-sevenths of wing, four times as long as its petiole, narrower, longer, and nearer base than the second posterior one; cross veins separated by about twice the length of the posterior one. Scales broad on outer parts of third vein and forks of second and fourth, with outstanding narrower ones; no broad scales on sixth; color dark with bronzy luster, base of wings light. Halteres light at the basal, black on the apical half.

Legs entirely dark with coppery luster, shining somewhat lighter beneath; hind femora largely whitish beneath, especially at base; first and second femora only a little lightened near base, but shining lighter along the whole ventral line; spiny dark bristles on femur and especially at tibia; raised scales at knees; claws equal and simple; femora I < II < III, the first hind tarsal longer than its tibia.

Male.—Proboscis 1.9 mm., brown, as if jointed beyond middle and there and at tip a little swollen, entirely dark. Palpi short, about one-sixth the length of proboscis (in side view). Antennæ a little more than one-half the length of proboscis, plumose, white and black ringed; last two joints with white pubescence. Thorax 1 mm., wings 2.5; abdomen hardly longer than standard; greenish colors darker and more obvious, vestiture rougher; forks shorter; femora more whitish beneath, claws 1:1, 1:1, 0:0.

That this species is not yet known from Panama is obvious from the key in Howard, Dyar, and Knab, where among the *Culex* with very short male palpi *conservator* only has no basal abdominal spots, but is easily separated by its narrower wing-scales. The blunt tip of abdomen and the absence of post-tibial scraper put our form into *Culex* H. D. & K.

On the other hand, we find in Peryassú's paper Lutz's description of *Aedinus amazonensis*, which apparently comes very near our form, *if it is a Culex at all*, for the data in that paper do not allow us to determine its position.

The main points of difference are: the greenish, not ochraceous, color my species exhibits in side view; the shorter palpi in the male (not on sixth) and female; the absence of black narrow curved scales from the occiput; the four long bristles, instead of three, on the lateral lobes of the scutellum; and the bronzy, not bluish, luster of the dorsum of the abdo-

men. Moreover, the few bristles on the lobes in our form can hardly be the same as the dense vestiture of hairs Lutz mentions for these parts; his species, with 3.5 mm. length in the male, is longer than mine; the ocellate spots of the mesothorax are not at all referred to by Lutz, no more than the peculiarities of the first abdominal tergite. Nevertheless, only a comparison with the types of Lutz could remove every doubt about the distinctness of my species.

The species is described from males and females caught by myself in November, 1913, at Porto Bello, Panama, at an old cistern. The types are in the collection of the Institut für Schiffs- und Tropenkrankheiten at Hamburg, some cotypes in the collection of the U. S. National Museum, Washington, D. C.

AN UNDESCRIBED LARVA, *CULEX CHALCOCORYSTES MARTINI?*

From the water of the same cistern, in the round opening of which I found the last described new species of *Culex*, I secured a great number of *Bancroftia* larvæ from which I partly reared the adults during my trip to New York on the S. S. *Karl Schurz*. The rest were preserved in alcohol. Among younger and older larvæ of *Bancroftia* and some pupæ I found a larva of a *Culex* which does not run out well with the (mss.) table of Howard, Dyar, and Knab, and which I therefore believe to be a hitherto undescribed one and probably that of the new *Culex chalcocorystes*. The larva is a rather small animal with a very broad head and long air tube. I took the following measurements:

Length (except the air tube and the gills) 4.5 mm., of which the head 0.9 mm., the thorax 0.6 mm., the abdomen 3 mm.; air tube, length 2.5 mm., width at base 0.2 mm., at tip 0.1 mm., length of pecten 0.4 mm. = one-sixth of the air tube, hairs of the last segment about 2.5 mm., brush 0.6 mm., longer gills 0.3 mm., longest hair of thorax about 2 mm., length of antennæ 0.6 mm.

Head broad; antennæ 0.6 mm. long, entirely dark, with a big hair tuft at about two-sevenths from the tip, the part beyond slender, bearing at the tip one double and one single bristle and one spine, the longer bristles being about as long as the antenna; basal part of the latter with sparse black spines. Near base of antennæ a tuft of about nine hairs, dorsally a tuft of three stout hairs, outside and before a single very long ciliate hair, inside a very small one; near the inner border of the eyes originates a tuft of two very fine long hairs, before the eye a tuft of three fine hairs. The